numerous, reaching 102, of which 29 are Boreales and 73 Aequatoriales. This well emphasizes the fact that the genus was very poorly understood.

The book includes all the features of a complete monograph in the way of discussion, keys, descriptions, citations of stations and exsiccatae, etc. The discussion includes such subjects as a historical account of the taxonomy of the group, an extended analysis of the characters used, the facts of parasitism, the origin of the genus, and the range of the species. The numerous plates, which are unusually clear photographic reproductions of types and authentic specimens, approach in value for reference a set of actual specimens.—J. M. C.

Soils

RUSSELL[4] has written another most interesting little book upon soils. His position as director of the famous Rothamsted Experiment Station, which has probably contributed more to our knowledge of soils than any other institution, and his established ability as a writer and as an authority on soil subjects, lead one to expect much from a book written by him, and in the present instance this expectation is fully justified. While the book is directly practical, dealing with matters that tillers of soils need most to know, it leaves the reader with a clear grasp of the main principles established by science and practice in this field. RUSSELL shows a happy breadth of view in treating the subject in this as in his earlier works. Some of our American writers on soils can profit by his example in this respect.

The revision of RUSSELL'S monograph on *Soil conditions and plant growth*[5] should have been noted at an earlier date. The first edition has already been reviewed in this journal.[6] While the second edition involved no essential changes, the third edition has a new chapter on the relationship between the micro-organic population of the soil and the growth of plants, also added sections in various other chapters of the book, along with other modifications that bring the book up to date. The book stands alone as a clear, terse, exact statement of the soil conditions in relation to plant growth.—WILLIAM CROCKER.

MINOR NOTICES

Microscopy of vegetable foods.—A second edition of WINTON'S volume under this title has appeared.[7] The general scope and purpose of this valuable

[4] RUSSELL, E. J., A student's book on soils and manures. pp. ix+206. *figs.* 3. Cambridge Press. 1915.

[5] ———, Soil conditions and plant growth. VIII. pp. viii+190. *figs.* 9. 3d ed. Longmans, Green, & Co. 1915.

[6] BOT. GAZ. **55**:167–168. 1913.

[7] WINTON, ANDREW L., The microscopy of vegetable foods, with special reference to the detection of adulteration and the diagnosis of mixtures. With the collaboration of Dr. JOSEF MOELLER and KATE BARBER WINTON. 2d ed. Imp. 8vo. pp. xiv+701. *figs.* 635. New York: John Wiley & Sons. 1916. $6.50.

work were stated in this journal[8] upon the appearance of the first edition. The second edition has incorporated the results of ten years of activity in the examination of human and cattle foods. Among the features of the edition are additions to the sections on wheat and flour; a complete revision of such parts of the chapter on oil seeds as treat of mustards, rapes, cruciferous weed seeds, and linseed; a description of the histology of alfalfa; and a revision of the sections on pomes and drupes. The arrangement of material, analytic keys, lists of adulterants, and the suggestions as to diagnosis are of great practical service in the campaign against sophistication by unscrupulous manufacturers and dealers.—J. M. C.

Plant anatomy.—STEVENS[9] has published a third edition of his well known *Plant Anatomy*, which speaks well for the growing interest in the subject, and also for the quality of the book. The other editions were reviewed in this journal,[10] so that the scope of the work has been described. In the present edition the most important addition is a section on the phylogeny of the vascular bundle, which could not be omitted from the plant anatomy of today. Naturally, there are also additions that include various improvements in technique. The author is a thoroughly good teacher, which means a well organized book and clear presentation.—J. M. C.

The first American Botany.—SAMUEL N. RHOADS has published a facsimile reprint of YOUNG'S *Catalogue d'arbres arbustes et plantes herbacées d'Amérique*, published in Paris in 1783, which is claimed to be the earliest published book written by an American botanist and devoted exclusively to American plants. The editor has given a prefatory account of the author, WILLIAM YOUNG, Jr., of Philadelphia, adding a very interesting personality to the known list of pioneer American botanists, and one whose chronological position in our American literature should be recognized. The book is privately printed in Philadelphia.—J. M. C.

North American flora.—The fifth part of Vol. 9 continues the presentation of the Agaricaceae by MURRILL,[11] 10 genera being presented, which include 311 species, 134 of which are described as new. The largest genus is *Prunulus*, with 106 species, 53 of which are new; the next is *Gymnopus*, with 93 species, 45 of which are new. New species are also described in *Geopetalum* (5), *Mieromphale* (2), *Omphalopsis* (14), and *Omphalina* (15).—J. M. C.

[8] BOT. GAZ. **41**:300. 1906.

[9] STEVENS, W. C., Plant anatomy, from the standpoint of the development and functions of the tissues and handbook of microtechnic. 3d ed. 8vo. pp. xviii+399. *figs. 155*. Philadelphia: Blakiston's. 1916. $2.50.

[10] BOT. GAZ. **46**:306. 1908; **50**:470. 1910.

[11] MURRILL, W. A., North American Flora **9**: part 5. pp. 297–374. Agaricales: Agaricaceae (pars), Agariceae (pars). New York Botanical Garden. 1916.